

THE DENTAL PRACTITIONER

monthly journal for the Practitioner and his Staff

OF MICHIGAN

SEP 9 1953

VOL. III, NO. 12

AUGUST, 1953

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[Incorporating the Official Supplement of
The Dental Laboratories Section of the Surgical Instrument Manufacturers' Association]

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UNIVERSITY
OF MICHIGAN

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A Monthly Journal for the Practitioner and his Staff

*(Incorporating the Proceedings of the British Society of Periodontology
and the Official Supplement of the S.I.M.A.—Dental Laboratories Section)*

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THE DENTAL PRACTITIONER

A Monthly Journal for the Practitioner and his Staff

Vol. III, No. 12



August, 1953

EDITORIAL

"TIMOR OMNES ABESTO"

THROUGHOUT the long centuries of man's existence attempts have constantly been made to abolish pain. Remedies and prescriptions dating back thousands of years tell the story, while the ups and downs of medical history may be traced through all its vicissitudes from these writings. From age-old recipes and through the days of black magic to the modern scientific approach of medicine the problem of pain has been largely conquered, and presents no real difficulty in its abolition. Alongside this problem of pain travels another unknown factor, the problem of fear. Fear has been defined as a painful emotion caused by impending danger or evil. It is a permanent part of the make-up of the animal world, and plays a tremendous part in our daily lives. It can be used as the most deadly of weapons, a fact that all politicians know only too well. The depth of fear varies from a mild fluttering in a transitory form to a point where death supervenes. It is possible that all fear is based on the fear of death, death being the greatest unknown factor in our lives, and we are all frightened of the unknown.

To overcome this problem of fear is part of the life's work of the dentist. There are very few patients who enter our surgeries without

some mild form of fear inside them. No one can have an extraction without apprehension, and even the simplest filling can call forth a slight reaction, despite all the modern methods and techniques. This fear or apprehension which exists so widely can be overcome by the dentist in the majority of cases. He learns by experience to set the patient at rest and in a tranquil frame of mind. At the other extreme there is the hysterical patient who is so afraid that nothing will allay his fears save a general anæsthetic. This is especially useful in children, when all the treatment may be carried out under this type of anæsthesia. Between these two ranges there is a wide variety of patients who require something more than a soothing word and less than unconsciousness. This field of premedication is of special interest to the dental profession, and it is a subject where a considerable scope for research lies. A simple solution, be it sedatives or some form of hypnosis, will be a blessing to mankind. The problem is being slowly solved and the road has been travelled a long distance in recent years. One day in the not too far future, perhaps we will be able to say to our patients in all sincerity: *Timor Omnes Abesto*—Let Fear be far from All.

FACIAL PARALYSIS ASSOCIATED WITH MARKED ASYMMETRY OF THE JAWS

By P. J. STÖY, B.D.S., F.D.S. R.C.S.

The Queen's University of Belfast

THERE has been much conjecture as to the part played by the facial muscles on the form of the dental arches. Washburn (1946) made an experimental investigation by the unilateral section of the seventh nerve in rats on the day of birth and found that effects became visible

paralysed side. This, by failing to grow normally, exerted a tension in the opposite direction to that exerted by the muscles on the functioning side; it also caused the posterior positioning of the angle of the mouth. He deduced that the actual deformity was the



Fig. 1.—Appearance at rest.



Fig. 2.—Appearance on smiling.

in two weeks. The tip of the nose deviated to the normal side, while on the paralysed side the angle of the mouth was more posterior. The animals were sacrificed at from six weeks to three months and after maceration of the skulls the nasal cartilage, the portion of the maxillary and nasal bones immediately adjacent to the cartilage, and in some cases even the anterior frontal bone were drawn to the normal side; in many cases the occlusion was seriously deranged. He thus showed that in rats the muscles of facial expression were powerful enough to bend the growing bones, but that the extent of this bending was varied by the degree of atrophy of the cheek on the

result of the pull of the normal muscles partially balanced by the opposing tension of the atrophied cheek.

These results were different from those obtained by previous experimenters (Gudden, 1876; Brucke, 1887), who found that in rabbits the anterior portions of the skull deviated to the paralysed side, not the normal side. Washburn repeated their experiments and obtained similar results, but demonstrated also that in this species there was an opposite deviation of the frontal and parietal bones. Thus, a double curvature in the skull was apparent, its interpretation being that although the normal muscles bent part of the parietal

and frontal bones to the normal side, the tension of the atrophied cheek was far greater than in the rat and not only pulled back the angle of the mouth but also dragged over the anterior hard parts of the skull. He decided

was cut and the resulting facial paralysis had persisted. Nerve suture was later considered but not advised because of the wide separation of the nerve-ends. There was no history of any other major operation.



Fig. 3.—Occlusal view of upper jaw showing flattening on right side.

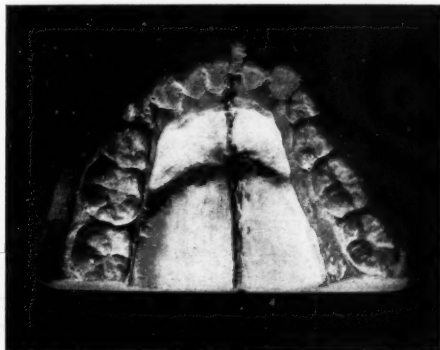


Fig. 4.—Occlusal view of lower jaw showing flattening on right side. Note how right lower central has been forced out of the arch.

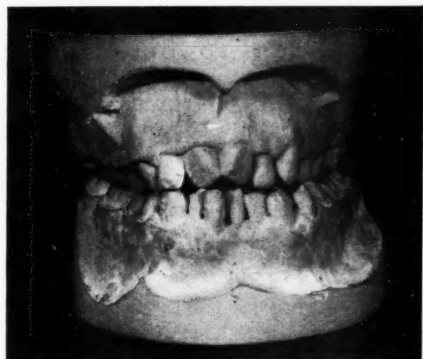


Fig. 5.—Frontal view showing relationship of arches. Note the movement of the midline in the lower almost one unit to the left.

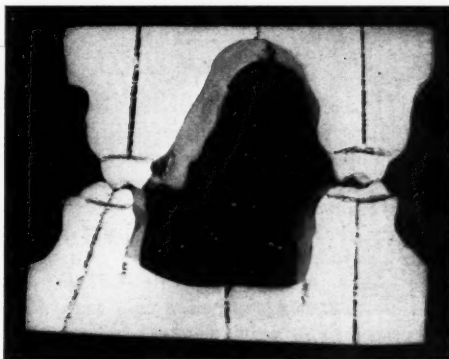


Fig. 6.—Cross-section of models viewed from behind. Note in particular flattening of body of mandible.

that because of this experimental variation in different species no conclusions could be drawn concerning man.

CASE REPORT

HISTORY.—A male, aged 24 years, presented on July 16, 1952, for advice and possible treatment. At 5 years he had had an operation for "mastoid", during which the right facial nerve

ON EXAMINATION.—Great disharmony was apparent, which became more marked when the patient attempted to smile (Figs. 1, 2). The mouth was pulled well across to the normal side, with the angle on the affected side being farther forward. The tip of the nose showed deviation to the left. Only one tooth had been lost and the bony development of the maxilla and mandible appeared good; oral hygiene was

also good, and in spite of the paralysis there was no evidence of food stagnation in the right buccal sulcus—possibly because there was no associated loss of sensation. There was, however, very marked flattening of both upper and lower arches on the right side (Figs. 3, 4), this flattening appearing more obvious in the lower, although some occlusion has been maintained (Fig. 5). The midline in the lower was almost one unit to the left. Cross-section of the models (Fig. 6) shows the associated compression of the alveolar bone and the body of the mandible.

TREATMENT.—A prosthesis in both upper and lower jaws carrying “plumpers” to build out the cheek was advised.

Comment.—Similar flattening of the arches may be seen in the absence of facial paralysis and one with as great an abnormality as this

has been reported by H. T. A. McKeag (1953). Such cases are presumably due to postural habits. In the light of the experimental evidence of Washburn, however, the probability of the present deformity being due to the facial paralysis is great. If the cause is accepted, the asymmetry demonstrated indicates that in man atrophy of the cheek does not play an important part in the resulting deformity, but that the chief factor is the unopposed normal functioning of the unaffected facial muscle on the sound side.

REFERENCES

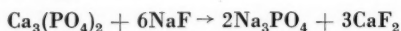
- BRÜCKE, E. (1887). *Vorlesungen über Physiologie*, 2, 1-359. Wien: Wilhelm Braumüller.
 CUDDEN, B. (1876). *Recherches Expérimentales sur la Croissance du Crane*, 1-96. Paris: Delahaye et Cie.
 McKEAG, H. T. A. (1953), personal communication.
 WASHBURN, S. L. (1946). *Anat. Rec.*, 94, 163.

THE PATHOLOGICAL SIGNIFICANCE OF MOTTLED TEETH

By CHARLES DILLON, D.D.S., L.D.S.

THE object of this paper is to demonstrate the toxic effect of fluorine on the vital tissues of the dental pulp and associated osseous tissues and the long-term effects of imbibing water containing toxic amounts of fluorine, and to show in general that the main tenets of the advocates of fluorination are unsound.

In a previous paper the author (1950) published details of experimental tests indicating the reactions occurring between several comparatively insoluble calcium salts and soluble fluorides. These tests were carried out in what may be termed high concentrations of salts as, for example, where 1 g. of calcium phosphate was suspended in 100 ml. of 1 per cent sodium fluoride solution for forty-eight hours. The insoluble matter was then found to contain 62 per cent of calcium fluoride, indicating the following reaction.



The direction of this reaction, it may be argued, is influenced by the insoluble nature

of calcium fluoride and may not be true for very low concentrations of salts, that is, below the level of solubility of calcium fluoride when the salts may be considered as in the ionized state.

One of the products of the above reaction was found to be the soluble sodium phosphate, and if it could be shown that this salt occurred as an end-product in very low concentrations of salts then the above formula would hold good for all concentrations.

Bone possesses the unique property of withdrawing and retaining calcium fluoride, one of the end-products of the interaction between any calcium salt and a soluble fluoride, in concentrations where the salts may be considered to be wholly ionized, and in fact it may be said to be equivalent to precipitation. Smith and Smith (1937) were the first to discover this property and used it effectively in reducing the fluorine content of water-supplies in the field to negligible amounts. In confirming these conclusions Dillon (1952, a) demonstrated that

sodium fluoride in solutions of low concentration reacted with powdered bone, displacing phosphate ions in proportion to the concentrations employed. From these findings it is obvious that calcium fluoride, or the end-product of interaction between a calcium salt and a soluble fluoride, being withdrawn from the sphere of action, the equivalent of precipitation, allows the reaction cited above to proceed to completion.

This reaction may, therefore, proceed progressively to completion in the fluids and tissues

the soluble fluorides may diffuse through to the fetus and influence its destiny, but, as there has been no purposeful investigation so far into this matter, a scientific statement on this question must await further investigation.

SAMPLING AND TESTING OF TEETH

The object of these tests was to compare the fluorine contents of sound dentine of teeth from individuals who had been exposed to various levels of fluorine intake. The teeth were first X-rayed, details of which are given

Table I.—FLUORINE CONTENT OF DENTINE
(parts per million)

LOCALITY	LOW IN F		SOUTH SHIELDS		WEST HARTLEPOOL		SUNDERLAND	
Water-supply	0.1-0.18 p.p.m.		0.73 p.p.m.*		2.5-2.7 p.p.m.		0.85 p.p.m.	
	D	P	D	P	D	P	D	P
	260	360	—	560	330	930	—	600
	400	300	—	500	290	1110	—	580
	270	730	—	540	610	890	—	710
	300	300	—	600	380	1000	—	—
	240	400	—	500	360	800	—	—
	260	300	—	440	370	790	—	—
Average	288	398	—	523	390	920	—	630
Average Age } Age	—	24	—	19	—	25	—	35

* 0.82 p.p.m. (Forrest).

D, Deciduous; P, Permanent.

of the body, especially in the vicinity of bone where calcium fluoride is certainly much less soluble than in distilled water.

Detoxifying Function of Bone.—Mottling of teeth will certainly occur where the water-supply contains soluble and therefore reactable fluorides (Dillon, 1952, b).

Bone appears to be the detoxifying centre for toxic or soluble fluorides or calcium-reactable or enzyme-inhibiting or tissue-destroying fluorides (Dillon, 1952, b), and this suggests a reason why deciduous teeth are very seldom mottled. The explanation might be that the bony structure of the mother first detoxifies or reacts with the soluble fluorides before they can reach the placenta by a process of diffusion. Should the mother tissue be confronted with such a concentration of soluble fluorides that it is incapable of detoxifying them entirely, then the possibility exists that

later, and then severed just above the enamel-cementum junction and each section examined with a magnifying lens to confirm the X-ray evidence. The decayed matter was then burred away with a round bur (No. 9) until the powder was completely free of carious matter. The dentine of the pulp was then ground out from the coronal as well as from the radicular portion until sample weights from 0.4 to 0.8 g. were collected.

The determinations of fluorine were carried out by Willard and Winters' method (1933), employing perchloric acid. Blank tests were made on all reagents and the values deducted from the determinations.

The results of these tests are given in Table I, where values are shown for the fluorine content of the dentine of deciduous and permanent teeth from three high-in-fluorine areas and from a low-in-fluorine area. It will be seen that

the average fluorine content of the groups bears a direct relationship to the total fluorine content of the water-supply.

RETENTION OF FLUORINE

McClure (1946), after a long course of elaborate experimentation, has striven hard and persistently to show that the fluorine taken into the body in the form of food and in water is almost completely eliminated through the faeces, urine, and sweat. But the bald fact is simple enough to perceive. The average fluorine content of deciduous teeth in Britain outside the fluorine-in-water area is 288 p.p.m., and of the permanent teeth the average is approximately 398 p.p.m. The deciduous teeth in West Hartlepool show a fluorine content of approximately 390 p.p.m., and the permanent teeth 920 p.p.m. In South Shields the average for permanent teeth is 523 p.p.m. F (*Table I, Fig. 1*).

It is a fair estimate to state that the average weight of the deciduous and permanent dentition together will be about 100 g. This means that the dentition alone of a child of say 14 years will have absorbed and retained in a non-fluorine-in-water area approximately 29–40 mg. fluorine, or say 60–80 mg. calcium fluoride. In a fluorine-in-water area the amount retained will lie between 39 and 92 mg. fluorine, or 80–190 mg. calcium fluoride. When we take into account the amount retained in skeletal bone (which continues to grow and develop up to the age of 25) and that amount retained in the soft tissues of the body (liver, spleen, kidneys, brain tissue, muscles, and tendons) it will be appreciated that the retention of fluorine in the body is beyond the meaning of the term "trace element". It is in fact a substantial amount. The amounts retained bear a direct relationship to the amounts ingested. It can be demonstrated that the process of absorption and retention is progressive and that fluorine is stored at the expense of the vital elements of teeth and bone.

X-RAY EXAMINATION OF EXTRACTED TEETH

Pairs of teeth were placed on a film close together on a flat surface, and the X-ray tube

directed perpendicularly down between the two teeth. The target distance of 6 in. from the film was measured and the exposure time was the same for all samples examined. When a large number of teeth were examined on larger film the same target distance was maintained only the aperture of the tube was widened by removing the metal piece controlling this.

It was possible by this means to differentiate radio-opaque changes in the pulp chamber with a satisfactory degree of accuracy, and for the purpose in hand the method is suitable for demonstrating the grosser forms of pulp degeneration.

This method was satisfactory as far as personal observation was concerned, but when it came to reproducing X-ray negatives as prints difficulties were encountered owing to the various densities and thicknesses of the enamel of the crown and the root as between different teeth. They could not be reproduced in print and for this reason most of the early illustrations had to be discarded. It was, therefore, found necessary to grind flats on the teeth in such a way that the enamel did not obscure the picture and a uniform thickness of dentine was exposed to the X rays. Most of the radiographs here illustrated were obtained by this method.

Pathological Changes in Teeth as shown by X Rays.—Mottling, so it is believed after thirty-odd years of superficial study, is caused by excess of fluorine ions in drinking water and a concentration of fluorine over 1 p.p.m. is associated with undesirable mottling. Mild mottling, it is stated, appears as pearly-white markings of permanent teeth. It is further stated that this is the first sign of fluorine intoxication, and therefore can be used as a reliable guide in controlling the amount of fluorine that the public must drink in order to safeguard them from the ravages of dental caries. These statements take no account of the fundamental cause of mottling. Dillon (1952, b) showed that mottling of teeth bears no exact relation to the total fluorine content of the water-supply, but is related only to the calcium-reactable or enzyme-inhibiting or tissue-destroying or poisonous fraction of fluorine in the drinking water, and a method of separating

this fraction was described. A further amendment is given at the end of the present paper.

A tooth is a highly specialized organ and is developed by a highly specialized tissue—the tooth germ. The mottling which is observed in the finished structure is a failure of the enamel-forming organ and ameloblasts to lay down the inorganic elements perfectly and without blemish in the presence of toxic fluorine circulating within these structures.

The mildest form of mottling observable has the same pathological significance as the grossest form.

The cellular elements, in the face of tissue-destroying fluorine circulating in the bloodstream, undergo degeneration and become incapable of fashioning perfectly the inorganic elements of enamel, dentine, and cementum, and, as the bony framework is fashioned by a similar physiological process, then it follows that any similar toxic disturbance taking part during the fashioning of skeletal bone will have a similar effect. The wonderful ability of vital tissue to carry out its function in spite of difficulties is well known, but it is sometimes forgotten that this wonderful mechanism has its limits of endurance. If the toxic fraction of fluorine is very small, the degeneration of the enamel-forming tissue progresses more slowly and white markings below Nasmyth's membrane are seen. If the toxic fraction of fluorine is greater, then the cellular elements degenerate faster, and mottling may appear more superficially on the surface of the crown, and, when finally the last layers of the enamel organ are affected, the result is gross deformity of the enamel. This is what can be seen, but our advisers should have made it their duty to inquire into the things that are not so easily seen. Mottling, it is emphasized, is an insignificant scar, merely a slight disfigurement to be paid for the great benefits claimed.

That this is not so is evident from a study of the physiological and pathological principles involved. It cannot be denied that mottling is a failure of the cellular elements due to toxic degeneration of the vital tissues taking part in the fashioning of the tooth. Therefore it is unworthy of scientific men to assume that the process will abruptly cease the moment

the teeth are erupted, and that the toxic degeneration involving the tissues taking part in the fashioning of the tooth, and which was the immediate determining cause of the mottling, should limit itself only to these tissues and then abruptly cease.

From a comparative study of teeth from a fluorine-in-water area and teeth from a non-fluorine-in-water area it becomes abundantly clear that mottling is progressive. From a study of the radiographs reproduced in this paper, it will be seen that the pulp chamber becomes progressively blocked by calcific matter gross enough to be demonstrated in radiographs. Again, there is no reason why the process should stop here. This progressive degeneration of vital tissue may affect the development of the alveoli, the development of the root and dental periosteum, and in the course of time bring about degeneration of the attachment apparatus and its blood-supply, resulting in early progressive periodontal disease and wholesale loss of teeth.

This in fact appears from the evidence to be the case. Why else should individuals lose sound teeth between the ages of 27 and 40? The integrity of the peridental fibres depends on: (a) their elasticity, and (b) their capacity for repair. If the cells of the peridental fibres suffer cellular death and subsequent calcification, then they will become rigid and snap under the stress of mastication, and once they break off from their attachment are incapable of repair.

Fish (1948) states that by far the most frequent late change following degeneration of the connective tissue of the pulp is the subsequent deposition of calcium salts in the collagen which are first formed when the fibroblasts degenerate. He goes on to state that in other tissues of the body deposits of calcium salts in degenerated areas are common and may be seen, e.g., in infarcts or in atheromatous patches of the arteries.

Secondary dentine is built up from the walls of the original dentine and is a physiological process in the main, whereas pulp stones have no connexion whatever with the original dentine and are seen as a calcific island in the pulp chamber, and, as they are usually built

around a nidus of infection or injury, they appear smooth and round or oval in shape.

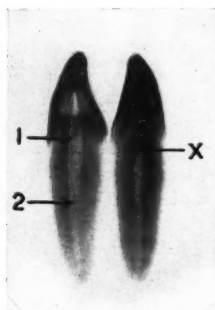


Fig. 1.

The type of degeneration under discussion, and which is due to fluorine intoxication, may give rise to an appearance which is indistinguishable from pulp stones, but also, as seen

Brief observations on the various illustrations can now be made:—

Fig. 1 shows a tooth from West Hartlepool. Age not given. Mottling medium. Fluorine content 930 p.p.m. Note calcific plug at 1 and 2. Control, patient from non-fluorine area, very heavy tea drinker. Fluorine content 790 p.p.m. Note at X normal closure of pulp chamber from secondary dentine formation.

Fig. 2 (teeth from West Hartlepool) shows the typical change in the pulp tissues which occurs in all fluorine-in-water areas. Six teeth are depicted in this radiograph and a control, marked C, of a man of 46.

The patient's age was only 28 and all the teeth were sound. The dentist who supplied these teeth remarked, "There was very little periodontal disease, but the patient suffered from some considerable pulpitis". The coronal mottling may be described as medium mottling. For the purposes of clarity it will help to discuss the changes step by step:—

1. Examine the two canines lying horizontally below the control and note that the calcific plug is ragged in appearance, is roughly the same shape, and is situated in precisely the same position of the pulp chamber, and therefore it may be concluded that (a) it is related to an exact period of time, and (b) since it is ragged in appearance, it suggests the progressive nature of the degeneration of the pulpal tissues owing to the constant effect of toxic fluorine.

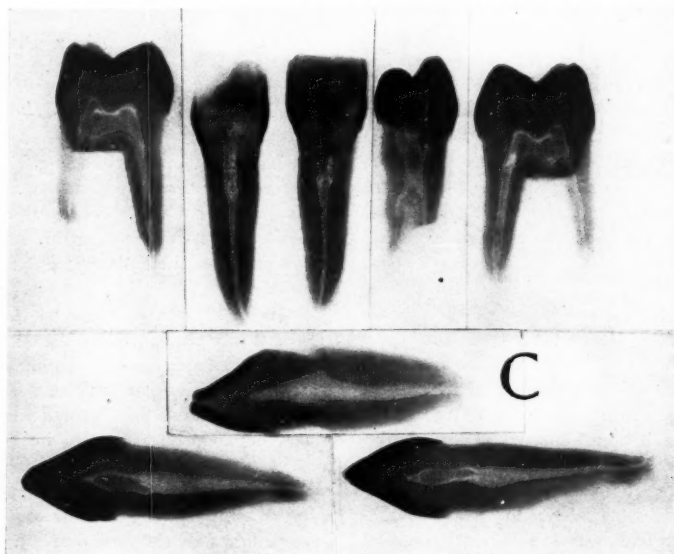


Fig. 2.

from the illustrations, possesses certain features which indicate the progressive nature of the degenerative changes and identifies its pathology.

2. Examine the two molars. Note again that the shape of the calcific plug is similar, and in addition to that, note the thin line of calcific deposit running up from the apex, showing that the toxic matter is being brought to the pulp chamber by the blood-vessels, which appear to be

themselves undergoing degenerative changes followed by calcification.

Fig. 3, from South Shields, shows that only four of these teeth have small fillings in them; the rest are absolutely sound. The patient is 42. The mottling in

A, and in B note blocking and also ankylosis to bone, marked at X. This patient suffered from advanced periodontal disease.

Fig. 5 shows three teeth from South Shields. The patients were all under 14, and the teeth were extracted

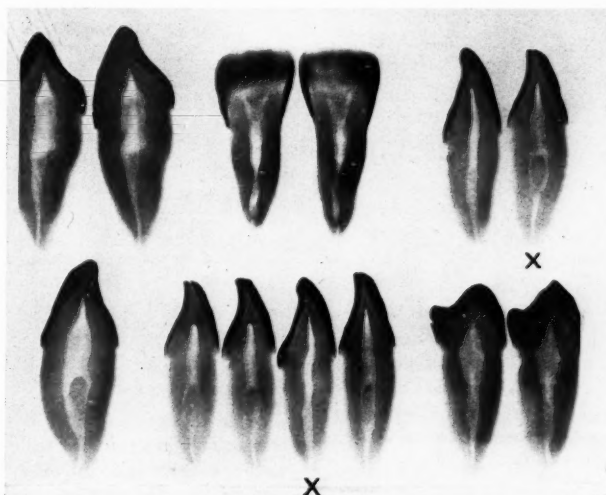


Fig. 3.—Teeth marked X were inadvertently transposed.

this case could only be detected with great difficulty. Note here again that the ragged appearance of the degenerative changes is evident, and that the degenerative changes are situated in unpaired teeth at different levels and in paired teeth at the same level. Note also

for regulation purposes. The pulp degeneration can just be detected in the print marked with arrows 1, 2, and 3. Note, especially at 2, a tendency for the degenerative changes to become apparent along the course of the blood-vessels.

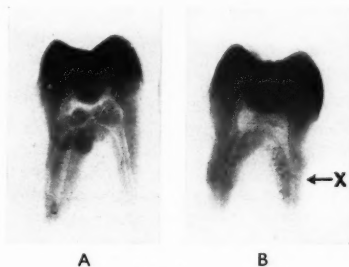


Fig. 4.

the thin line of calcific deposit following the course of the entering blood-vessels. This patient suffered from advanced periodontal disease.

Fig. 4 depicts two molars representative of fifteen extracted teeth from South Shields. Age 40. Fluorine content of a premolar of this series 590 p.p.m. Note blocking of pulp chamber and extension towards apex in

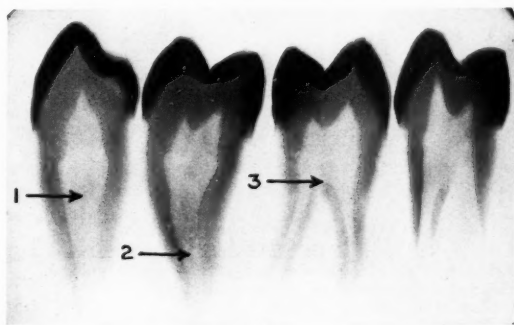


Fig. 5.

Fig. 6 illustrates two teeth from Sunderland. No. 1, aged 23, fluorine content 560 p.p.m. The degenerative changes here are just detectable by close examination of the radiograph. No. 2, aged 45, fluorine content 630 p.p.m. Note calcific deposit in root canal, with faint extension towards the apex. These two teeth are free from decay. The control is of a man of 46, showing completely

normal pulp chamber. The total fluorine content of the water-supply of this town is 0.85 p.p.m. and the toxic fraction was found to be 0.16 p.p.m. (Table II.)

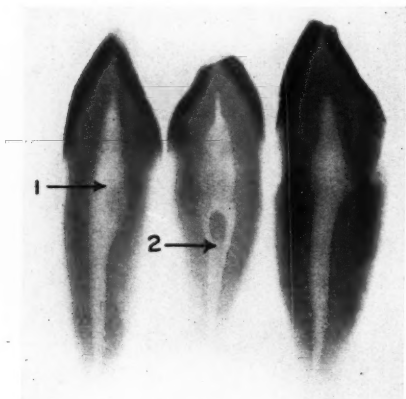


Fig. 6.

Fig. 7 shows a tooth from South Shields. Age 18. Hardly noticeable mottling. Fluorine content 560 p.p.m. Note calcific plug in pulp chamber with thin line of calcific deposit running down towards the apex, evidently

content 430 p.p.m. This tooth shows abnormal pulp chamber. Inquiry brought out that although she was born in Glasgow and now lived in Fort William, she had spent most of her summer holidays with her aunt in Sunderland.



Fig. 7.

Such changes as those described above do not occur generally outside the fluorine-in-water areas, and in every case in which



Fig. 8.

following the course of the blood-supply. Control from Edinburgh, age 15, showing completely normal pulp chamber despite presence of advanced decay. Fluorine content of the control was 350 p.p.m.

Fig. 8 also shows a tooth from South Shields. Age 15. Faint mottling. Fluorine content 540 p.p.m. Note the ragged calcific plug, and the thin line of calcification following the entering blood-vessels. The whole calcific pulp chamber was enucleated easily, with pointed end running into the pulp chamber. The calcified pulp content of this tooth and the one in Fig. 7 were enucleated for fluorine analysis (see text). Control 1, from non-fluorine area, age 16, fluorine content 300 p.p.m. Completely normal pulp. Control 2, age 15, fluorine

similar symptoms were observed, inquiry brought out the fact that the patients had spent most of their time in one of the fluorine-in-water areas, or had been exposed to industrial fluorine for some time, or had played in childhood amongst cryolite dust.

The calcific deposits of five teeth from South Shields were enucleated, crushed to a fine powder between the beaks of a pair of pliers, and analysed for fluorine content. Two of

these teeth are illustrated (Figs. 7, 8). The fluorine content was found to be 300 p.p.m. and the average fluorine content of the five teeth examined was 530 p.p.m.

The severity of the degenerative changes is related to the toxic fraction of fluorine in the drinking water. The pathological changes

Table II.—TOXIC OR CALCIUM-REACTABLE FRACTION OF FIVE WATER-SUPPLIES

LOCALITY	TOTAL F	TOXIC F
Cardiff	p.p.m. 0.3	p.p.m. Nil
Huntly (Aberdeenshire)	0.4	0.08
South Shields	0.73-0.82	0.33
West Hartlepool	2.5-2.7	0.39
Sunderland	0.85-0.9	0.16

appear to be a little more severe in the West Hartlepool area, which has a total fluorine content of 2.5 to 2.7 p.p.m. and a toxic fraction of 0.39 p.p.m. (Table II).

In the South Shields area the onset of these changes seems to be more evident in a later age group, although it can just be demonstrated in the sound teeth of even teenagers (Fig. 5). In decayed teeth it appears in gross form in teenagers (Figs. 7, 8). South Shields, with a total fluorine content of 0.73 to 0.82 p.p.m., has a toxic fraction of 0.33 p.p.m.

That the changes discussed above are not confined to the pulp tissues alone and bear reference to the marrow-spaces of bone in general, may be supported by a study of "Industrial Fluorosis" No. 29, 1949. One of the captions to the radiograph in that publication, plate 9 facing page 56, reads: "Pelvis of an affected man. Case No. K4 showing amorphous and granular condition of the bone with loss of trabecular pattern". Plate 10 (same case) caption reads: "Lumbodorsal spine of an affected man showing lipping, beak-like exostosis, and osseous bridges."

These observations show clearly the progressive nature of fluorine intoxication, and the cases depicted here indicate that these pathological changes do occur at a level of fluorine concentration (0.73-0.85 p.p.m.), which concentration the advocates of fluorination maintain stubbornly is a safe level for the very young, very old, healthy or sick to consume

daily to the end of life. Is there any reason why these toxic effects now demonstrated should limit themselves to the vital structures immediately connected with the structure of teeth and bone? None whatsoever; consideration must also be given to the soft tissues and organs of the body.

Weaver (1948, 1950) stated that fluorine was caries-postponing in its effect, and he estimated that the delaying effect was about five years in the onset of caries. Forrest, Parfitt, and Bransby (1951) conducted a survey of three high- and three low-fluorine areas in England and found it possible to conclude from their work that the delay in the onset of dental caries was not 5 years but rather 10 years, and that a reduction in caries incidence was found up to the age of 40, thereby confirming the work of Deatherage (1943) and McKay (1948).

Let us select from their work figures from one low-fluorine area and one high-fluorine area and draw a graph (Fig. 9). In the case of South Shields the very steep rise in tooth loss between the ages of 31 and 40, if it is not

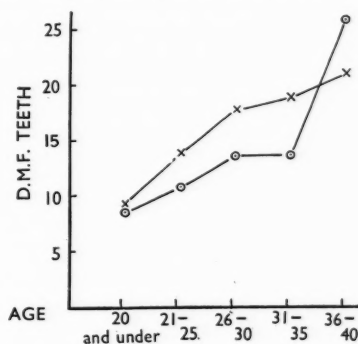


Fig. 9.—Graph drawn from figures of one low-fluorine and one high-fluorine area. ○—○, South Shields (0.82 p.p.m. F); x—x, Ipswich (0.3 p.p.m. F).

due to rapidly advancing dental caries, must be due then to periodontal disease. These authors did not mention the periodontal condition of the teeth counted in at the time of their examination, nor have they followed up the cases to find out how many of the patients had total extractions shortly after they concluded their investigations.

THE DAILY HAZARD

Those who would fluorinate water-supplies set the limit and declare that a daily intake of 4 mg. is not excessive. It is the author's opinion that this is a very large dose indeed for an element such as fluorine, which is both cumulative and toxic. However, even this large dose is being exceeded every day by people living under the "normal" conditions of modern life. We are surrounded by fluorine. We get it from the dust of cities, from the widespread transportation of cements, fertilizers, and materials for road making, from the

the mixture evaporated, dried, and ignited, and tested for fluorine.

The results obtained from the four samples after deducting a determined blank on the reagents were:—

	Total Fluorine	Extractable Fluorine
1. Lapsang Souchong	180 p.p.m. F	84 p.p.m. F
2. Keemun Congou	216 "	136 "
3. Ceylon and Indian blend	248 "	120 "
4. Pure Darjeeling	108 "	78 "

It was found that an average heaped teaspoonful of the leaf tea weighed 3 g., and the average contents of a teacup was 150 ml. The

Table III.—CONCENTRATION AND DAILY INTAKE OF FLUORINE FROM TEA (6 CUPS)

LOCALITY	AREA LOW IN F	SOUTH SHIELDS	WEST HARTLEPOOL	SUNDERLAND
F in water	p.p.m. 0.18	p.p.m. 0.73	p.p.m. 2.6	p.p.m. 0.85
F in tea (concentration)	0.96-1.54	1.5-2.1	3.4-4.0	1.6-2.2
Daily intake F in mg.	0.86-1.39	1.4-1.9	3.1-3.6	1.4-2.0

dust of even the most remote country village. We get far too much from foods and drink and much of it is unsuspected. The spraying of vegetables and plants with fluorine is to be condemned and more care could be taken to exclude this element in the manufacture of foods, but this will be rendered even more difficult, and indeed beyond the manufacturer's control, if in the food preparation he is obliged to use fluorinated water.

Let us examine what may be called our national drink—tea, a drink which is consumed in this country morning, noon, and night. The brief details of testing are given below.

Total Fluorine.—Ten grammes of leaf tea was stirred with hot water and 1 gr. of fluorine-free lime evaporated, dried, and ignited, to destroy all organic matter and the fluorine determined by Willard and Winter's method, to which reference has already been made.

Extractable Fluorine.—Ten grammes of the leaf tea was brewed with 1000 ml. boiling water for ten minutes, occasionally stirred and filtered through a gauze strainer. One gramme of fluorine-free lime was stirred into the filtrate,

housewife making tea usually adds one teaspoonful of leaf to the pot for each person partaking (some add also one for the pot), and it is usual for each person to partake of two teacupsful of tea. Thus it may be said that a person drinking tea takes 300 ml. of infusion, representing the extract of 3 g., or average tea as drunk may be considered as a 1 per cent solution or extract. Taking the lowest value of extractable fluorine (No. 4), 78 parts per million, or 0.078 mg. fluorine per gramme of leaf, one person would imbibe the extractable fluorine from 3 g. of leaf, i.e., 0.234 mg, and the concentration of this amount in 300 ml. would be 0.78 p.p.m. F.

The other samples of tea would give *pro rata* values: 1, 0.252 mg., 2, 0.408 mg., 3, 0.360 mg.; and the concentration of fluorine in 300 ml. 1, 0.84 p.p.m. F, 2, 1.36 p.p.m., 3, 1.2 p.p.m.

In Table III the concentration and daily intake of fluorine from six cups of tea is given with reference to the fluorine content of the various water-supplies in the areas studied.

Now the advocates of fluorination have repeatedly stated they are going to control

the fluorine content with the aid of expensive precision plant at the concentration of 1 p.p.m. F. What are the facts?

As will be seen from the above figures, we in Britain have been imbibing fluorine in tea at a concentration of 0.78 p.p.m., as much as the fluorine content of the water-supply in South Shields (which is reputed to be capable of reducing dental decay), to 1.36 p.p.m., the equivalent of the fluorine content of the water-supply in Colchester.

The population of South Shields with an F content of 0.82 in the water-supply unsupervised has been consuming fluorine at the rate of 1.5 p.p.m. to 2.1 p.p.m. from tea and water together, and those in West Hartlepool, with an F content of 2.6 p.p.m. in their water-supply are consuming F at the rate of 3.4 to 4.0 p.p.m. Must it then be deduced from this that there is some particular quality in the fluorine with which it is intended to fluorinate the water-supply? Ironically enough, this is exactly true, for if it is intended to add sodium fluoride or sodium silico-fluoride to the water-supply, and if the resultant fluorine has the ability to reduce juvenile dental caries due to the enzyme-inhibiting property of all soluble fluorides, or if it is selectively absorbed from the intestines, it will also have a toxic effect on the vital tissues of the pulp and its supporting structures, resulting in an early mass loss of teeth owing to periodontal disease. Nor will the process of tissue poisoning cease when all the teeth are lost.

ADDENDUM

Some further revision of the technique of determining the "toxic fluorine fraction" in water (Dillon, 1952, b) has been made and may be noted briefly here.

1. The sample of water under examination (usually 250 ml.) is maintained slightly alkaline to phenolphthalein with sodium hydroxide and evaporated without loss to dryness. The residue is moistened with 2 ml. water and allowed to stand for some hours, in order

to coagulate any calcium fluoride which may be present. It is again evaporated to dryness, 10 ml. of water added, well mixed, and any residue then allowed to settle. The extract is filtered through a close-textured paper which has been previously well washed with 1 per cent sodium hydroxide solution followed by distilled water until free from alkali. The filtrate, which should be perfectly clear, is transferred to a Claissen flask, distilled with perchloric acid and the fluorine determined in the distillate in the usual manner.

2. A second portion of the sample (250 ml.) is maintained slightly alkaline with fluorine-free calcium oxide and the procedure outlined above then followed.

The value obtained for the fluorine from (1) represents the excess of soluble fluoride remaining after all the calcium salts originally present in the water have been precipitated during evaporation or have been reacted to form calcium fluoride at some stage during concentration. The fluorine found from (2), usually nil or of a very low order, represents a blank on the titration, etc., and covers any slight solubility of calcium fluoride. The difference of the two values represents the "toxic-fluorine fraction" or that part of the fluorine present in the water free to react with calcium salts. Hence, in the case of drinking water, the toxic fraction is that amount of fluorine capable of reacting with body calcium.

It has been found in the case of water samples containing comparatively small amounts of dissolved solids that distillation may be dispensed with, in which case it is advantageous to add an equal amount of industrial methylated spirit to the final extract to reduce the solubility of calcium fluoride. Many workers also claim that the addition of alcohol or methylated spirits before titration of the fluoride with thorium nitrate gives a sharper end-point when using sodium or zirconium alizarine sulphonate as indicator.

REFERENCES

- DILLON, C. (1950), *Dent. Mag., Lond.*, **67**, 409.
 — (1952, a), *Dent. Practit.*, **3**, 79.
 — (1952, b), *Ibid.*, **3**, 101.
 DEATHERAGE, C. F. (1943), *J. Dent. Res.*, **22**, 129.
 FISH, E. W. (1948), *The Surgical Pathology of the Mouth*. London: Pitman.
 FORREST, J. R., PARFITT, G. J., and BRANSBY, E. R. (1951), *Mon. Bull. Minist. Hlth Lab. Serv.*, **10**, 104.
Industrial Fluorosis (1949), Medical Research Council Memo. No. 22. H.M.S.O.
 McCURE, F. J. (1946), *Dental Caries and Fluorine*, A.A.A.S., 74-92.
 MCKAY, F. S. (1948), *Amer. J. Publ. Hlth*, **38**, 6.
 SMITH, H. V., and SMITH, M. C. (1937), *Waterworks Engng.* Nov.
 WEAVER, R. (1948), *Proc. R. Soc. Med.*, **41**, 284.
 — (1950), *Brit. dent. J.*, **88**, No. 9, 231.
 WILLARD, H., and WINTER, O. (1933), *Industr. Engng Chem.*, **5**, 7.

DENTAL QUALIFICATIONS AND THE ROYAL SANITARY INSTITUTE

In view of the important preventive work of dentists, the Council of the Royal Sanitary Institute, in pursuance of their object of promoting the health of the people, have accepted for Ordinary Membership a qualification

registered in the Dentists' Register of the Dental Board of the United Kingdom.

Inquiries should be addressed to the Secretary, 90, Buckingham Palace Road, London, S.W.1.

A NEW TYPE HYPNOTIC-SEDATIVE: METHYLPENTYNOL

A PRELIMINARY CLINICAL EVALUATION OF ITS USE IN DENTISTRY

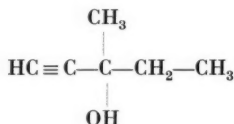
By P. A. TROTTER, B.D.S. (Birm.), H.D.D. (Edin.), L.D.S. (Eng.)

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INTRODUCTION

RECENT clinical reports on methylpentynol "Oblivon"—a drug with a swift sedative action but without any toxic side-effects, suggested that it might have therapeutic value as a pre-operative sedative for use in dentistry.

This drug contains no barbituric acid or other ureide derivative, no opium or bromine substances, and in fact is composed only of carbon, hydrogen, and oxygen. The absence of nitrogen in its structure makes it unique amongst the currently used hypnotics. It is a simple unsaturated aliphatic carbinol with the structural formula:—



Its action has been thoroughly investigated in animals and in humans, and it has been found to be extremely efficacious for inducing normal sleep. There are no reported contra-indications to its use, and it has been safely administered to patients suffering from simple insomnia, nervous tension, hypertension, arteriosclerosis, alcoholism, menopausal disturbances, diabetes, etc. (Gangemi, 1952). No adverse effects were reported following its use in any of these conditions.

It has been shown in animal experiments (Margolin, Perlman, Villani, and McGavack, 1951) that the drug is completely eliminated in two hours, leaving no trace in any tissue or organ. Laboratory tests, such as complete blood-counts, urinalysis, blood-sugar, blood-urea, creatinin, total serum-protein, albumin, globulin, phosphorus, alkaline phosphatase, total cholesterol, free and combined cholesterol,

and in addition van den Bergh reaction and total bilirubin, thymol turbidity, and cephalic flocculation were determined before and after administration in 134 patients (Margolin and others, 1951) and indicated that there were no pathological changes attributable to the drug.

Numerous clinical trials with this drug have been carried out in America (Allen and Krongold, 1951; Hirsch and Orsinger, 1952; Chevalley and others, 1952), and the results have been confirmed by a clinical trial in Great Britain, the results of which are awaiting publication (Wilkinson, 1952).

Methylpentynol has been used to elicit the co-operation of the patient (particularly children) during electro-encephalography procedures (Tükel and Tükel, 1952), and to quieten children during rest periods in the treatment of tuberculosis (Malone, Klimkiewicz, and Gribetz, 1952). These reports stimulated the thought of its possible use in dentistry, for here appeared to be a non-harmful drug which alleviated apprehension, thereby assisting technical manipulations. By the use of this drug it might be possible to have the patient under the influence of a hypnotic-sedative and still fully co-operative. Methylpentynol is not akin to the barbiturates and similar types of drugs, and indeed when given as a hypnotic the sleep produced is restful and normal in every way and the patient can be wakened easily by minimal sensory stimuli (Tükel and Tükel, 1952). Although it seemed possible that the "sensory stimuli" involved might nullify the hypnotic effect of the drug, it was considered worthwhile to investigate the applications of methylpentynol in dentistry, since most patients suffer some form of apprehension, and some may be extremely difficult to handle.

MATERIAL

"Oblivon" was administered as a routine in a series of 200 cases prior to extraction operations which varied in duration and severity and which were performed under local anaesthesia. Some were confirmed cardiac and diabetic cases.

Dosage and Administration.—In all patients the following dosage was adopted:—

Adults: 2×250 mg. "Oblivon" capsules

Children: 1 teaspoonful (4 c.c.) "Oblivon" Elixir (equivalent to 250 mg. methylpentynol) in water.

This was the dose estimated to reduce apprehension and render the patient calm and co-operative whilst he remained fully conscious.

Patients did not object to taking the capsules, although a few found them difficult to swallow. In these cases an equivalent dose of the elixir was given.

After an interval of from 10 to 15 minutes the patient entered the surgery, and administration of local anaesthetic was commenced.

Method of Assessing Results.—Patients were questioned during and immediately after the operation, and those who had to return for further extraction were also questioned on their return as to any after-effects of the drug.

Combined individual assessment of the various states of the patient, viz., Apprehension, No Apprehension, Drowsiness, etc., was carried out by the staff of the Department and the dressers on duty each day. Each patient was observed by at least two members of the staff and one dresser.

RESULTS

NO. OF PATIENTS RECEIVING OBLIVON (METHYLPENTYNOL) PREMEDIATION	NO. OF PATIENTS SHOWING NO SIGNS OF APPREHENSION	NO. OF PATIENTS APPREHENSIVE	NO. OF PATIENTS VERY APPREHENSIVE	NO. OF PATIENTS DROWSY
200	189 (94.5 per cent)	6 (3 per cent)	5 (2.5 per cent)	9 (4.5 per cent)

Toxic Effects.—No toxic effects were noted in or reported by any patient.

Comments.

a. Operators' Findings.

1. Whilst all measures are normally taken in the Department to reduce undue apprehension in the patient, and whilst it is difficult to assess what would have been the patient's behaviour without the "Oblivon", it seemed that there was a marked improvement during the period of the preliminary trial.

2. The action of the drug was rapid; thus there was no prolonged waiting. Its full effect appeared to be maintained for 60 minutes or more after administration. This was particularly noticeable in difficult extractions and removal of buried roots, etc., where the patient was completely at ease.

3. Those having difficult extractions were very co-operative, and whilst showing no signs of stupor were obviously quite at peace.

4. At the conclusion of the operation the patients were normal in speech and behaviour, and even those who had shown some drowsiness were able to go home. There was one exception—a girl aged 15 years. She was a big girl for this age and was given an adult dose. She said she felt tired after the operation, and had a peaceful sleep of about an hour's duration.

5. The calm behaviour of the patient reduced the mental stress of the operator.

b. Patients' Comments.—Some patients volunteered complimentary statements. The majority, when questioned, said they did not feel sleepy but quite at ease. They said that they felt very nervous at the thought of the operation, but had lost this feeling after the drug was given. The following are comments from a few typical patients.

Case 1.—Mr. J. L. S. Aged 40. Occupation—clerical supervision. Sept. 3, 1952. Patient referred by dental surgeon after extractions under nitrous oxide/oxygen anaesthesia. Osteomyelitis 45 region. Patient neurotic and difficult. Admitted and 45 opened. Healing uneventful.

Nov. 21, 1952: Attended for special surgical removal of 43 roots which were deeply buried. 2×250 mg. capsules "Oblivon" given. Operation, performed under local anaesthesia, was commenced 20 minutes after administration of the "Oblivon". Patient stated: "Whilst in my opinion I was still mentally alert I now had a feeling of being more comfortable, free from

nervous anxiety, which was previously experienced, and now mentally resigned to the length of time it might take to complete the operation." One hour later patient proceeded to the X-ray Department for location radiograph. He stated: "No feeling of unsteadiness and fully relaxed." The operation was completed uneventfully and the patient was excellent throughout.

Case 2.—Mrs. M. C. Aged 29. Occupation—housewife. Patient gave a history of post-extraction hæmorrhage. Very nervous individual.

Sept. 24, 1952: Attended for extraction of [4 under local anaesthesia. Premedicated, Nembutal gr. 2, one hour before operation. Healing uneventful.

Feb. 19, 1953: Attended for extraction [6] under local anaesthesia. Premedicated, 2 × 250 mg. capsules "Oblivon" 10 minutes prior to operation.

Patient showed extreme interest in premedication for she stated that although she had experienced many visits to the dental surgery and had had other forms of premedication she had never felt so much at ease as during this last extraction with "Oblivon" premedication.

Case 3.—Mrs. S. C. Aged 37. Occupation—nurse. Patient referred with history of difficult extractions and post-operative healing for removal of [5 root. Radiographs showed hypercementosis of the root and sclerosis of the bone.

Dec. 2, 1952: Attended for extraction of [5 root under local anaesthesia. Highly nervous in view of previous experiences. No "Oblivon" or other form of premedication administered. Root removed with the exception of apical third. Prolonged operation. Patient very apprehensive throughout.

Feb. 9, 1953: [5 area re-opened under local anaesthesia. 2 × 250 mg. capsules "Oblivon" given 15 minutes prior to injection. Apical third [5 removed surgically. Operation lasted 1 hour. Patient's behaviour excellent. She volunteered the statement that she had never felt so much at ease during dental treatment. Socket packed gelatin sponge. Two sutures inserted.

Feb. 13, 1953: Attended for removal of sutures. Healing uneventful. Patient again emphasized the calm after administration of the "Oblivon" capsules prior to the extraction.

Case 4.—Mrs. M. B. Aged 43. Occupation—Accounts Clerk.

Oct. 7, 1952: Patient attended for extraction of [8] under local anaesthesia. She was extremely nervous and difficult to control. The tooth was extracted painlessly and was not difficult, but the patient's behaviour was poor throughout.

Feb. 18, 1953: Attended for extraction [54]; both teeth were heavily filled and the [5] was periostitic. Patient was very apprehensive on arrival. 2 × 250 mg. capsules "Oblivon" administered 15 minutes prior to injections. Patient stated she felt more comfortable and not so nervous. [5] was removed without any difficulty. [4] had two slender roots and the apical third of the buccal root fractured just prior to delivery. Apex removed with small elevator. Patient behaved well throughout the operation and remarked how much better she felt than with any previous extractions. The apprehensive feeling had entirely vanished.

Control Experiments.—The results of the survey using "Oblivon" were very encouraging.

ing, and whilst it is again emphasized that every precaution is taken to allay undue apprehension, the general impression throughout the trial was that tension in the department was considerably reduced.

Nevertheless it was thought advisable and indeed necessary to carry out some control experiments.

Control Experiment 1.—Two batches of capsules identical in shape, size, and colour were prepared—Capsules A and Capsules B. One of these contained the active drug, the other capsules were blanks and contained an inert substance. Only the manufacturers knew which were the capsules containing methylpentynol. A good indication as to the efficacy of the drug would be the ability of the operator to differentiate between the two with only actual results to guide him.

Consequently, on a particular morning, each patient was given two of Capsules A. The first two patients were apprehensive and although it was early in the experiment the observers began to think that A were the blanks. Later in the morning after attending more patients their assessment changed as subsequent patients were very calm in spite of difficult extractions in two cases. On subsequent sessions Capsules A were administered and after three sessions the operators were of the opinion that Capsules A were beneficial.

Two capsules B were given to each patient and observations on two sessions only led the assessors to volunteer the statement that Capsules A contained "Oblivon" and Capsules B were blank.

Control Experiment 2.—Capsules B were administered to a number of patients approximately equal to those who had been given "Oblivon" in the first survey. Methods of observation and conditions were identical. As in Control Experiment 1, it was not long before the operators realized that the capsules were blanks, but the experiment was continued until the behaviour of two hundred patients had been observed.

The results were as follows:—

NO. OF PATIENTS RECEIVING CONTROL CAPSULES	NO. OF PATIENTS SHOWING NO SIGNS OF APPREHENSION	NO. OF PATIENTS APPREHENSIVE	NO. OF PATIENTS VERY APPREHENSIVE
200	115 (57.5 per cent)	68 (34 per cent)	17 (8.5 per cent)

On consulting the manufacturers it was confirmed that Capsules A contained "Oblivon" (methylpentynol), and Capsules B were in fact inert blanks.

Control Experiment 3.—Patients who had received Capsules A on the occasion of their previous visit, were given Capsules B. These patients were reasonably well-behaved and it was thought that the psychological effect of having had capsules identical in appearance followed by uneventful surgical procedures on the previous occasion was probably responsible.

It was noticeable, however, that when Capsules B were administered on the previous visit the patient was apprehensive, and when Capsules A were given on a subsequent occasion, a marked improvement occurred.

Case 1.—Mrs. F. H.

March 25, 1953: This patient attended for removal of 456 under local anaesthesia. Two Capsules B (inert) were administered 15 minutes prior to the commencement of anaesthesia. The patient was very apprehensive but the operation was, with difficulty, continued. Anaesthesia was completed and the 45 were removed. The patient was so nervous that prior to the extraction of 6, two capsules A ("Oblivon") were given. After a further 10 minutes wait the patient re-entered the surgery for the 6 to be extracted. There was a marked improvement in her condition and the tooth was removed without any signs of apprehension.

Case 2.—Mr. P. G. Aged 21.

March 26, 1953: This patient attended for the removal of 4 and gave a history of previous difficult extractions. Two capsules B (inert) were administered 15 minutes prior to commencement of anaesthesia. The patient was slightly apprehensive. The tooth fractured at a point about $\frac{1}{4}$ in. above the crest of the alveolus. It was extremely brittle and the bone was very dense. A flap was reflected and the buccal plate was removed—during this the patient became more apprehensive, no doubt owing to the previous history. At this stage two Capsules A ("Oblivon") were given and some 10 minutes later the operation was continued. There was a change in the patient's attitude and after the removal of the two roots and suturing he asked the operator if he would look at the 6 region where he had had a tooth removed three years ago. Apparently the tooth had broken and attempts had been made to remove the roots. On inspection the anterior root was just visible through a break in continuity of the mucosa. The patient was informed. He expressed a wish that it be removed there and then. It was explained that there might be some difficulty but he was in such a frame of mind that he wished to continue. Under regional anaesthesia the root was removed and the patient's behaviour was excellent. Indeed after the administration of the "Oblivon" he was laughing and joking with the dressers who were present during the operation.

SUMMARY

Methylpentynol ("Oblivon") was administered to allay apprehension in 200 patients who were about to undergo dental extraction operations of varying severity and duration.

NEW MATERIALS

For Your Nurse

Dental equipment is not always easy to keep clean, particularly in respect of dust on the unit and the chair. The general dusting of the surgery usually tends to disturb the dust and make it settle on other instruments. To help overcome this annoyance our attention

One hundred and eighty-nine patients stated that they felt no apprehension 15 minutes after administration of a dose of 500 mg. methylpentynol, and a further 6 patients were only mildly apprehensive.

No toxic effects were observed.*

Control experiments were carried out and the results are indicated.

CONCLUSIONS

The results of this preliminary trial have shown methylpentynol ("Oblivon") to be of value as a pre-extraction sedative in dentistry. Further investigations are being undertaken including its use in conservative dentistry.

My thanks are due to Dr. R. Cocker, M.B., Ch.B., F.D.S., Director of King's College Hospital Dental School, for facilities granted; to Miss R. E. Andrew, B.D.S., my assistant in the Extraction Department, for her co-operation in the assessment of results, and to Messrs. British Schering Ltd. for supplies of "Oblivon" (methylpentynol) and the control blanks.

REFERENCES

- ALLEN, A. W., and KRONGOLD, D. D. (1951), *Quart. Bull. Sea View Hosp.*, April, 61.
- CHEVALLEY, J., and others (1952), *N.Y. St. J. Med.*, March 1, 572.
- GANGEMI, C. R. (1952), *Int. Rec. Med.*, 165, April, 199.
- HIRSCH, H. L., and ORSINGER, W. H. (1952), *Amer. Pract Digest Treatment*, Jan., 23.
- MALONE, H. J., KLIMKEWICZ, C. R., and GRIBETZ, H. J. (1952), *J. Pediat.*, 41, No. 2, Aug., 153.
- MARGOLIN, S., PERLMAN, P. L., VILLANI, F., and MCGAVACK, T. H. (1951), *Science*, 114, 384.
- TÜKEL, K., and TÜKEL, M. (1952), *Electroenceph. clin. Neurophysiol.*, 4, 363.
- WILKINSON, G. H. (1952), *Alchemist*, Dec., 327.

* A further 450 patients have now been premedicated with "Oblivon" with results confirming those of the reported series and no side effects have been observed.

has been drawn to a new type of duster. It is in the form of a pad which may be folded over as it is used, and is impregnated with a substance that picks up the dust as it is used, instead of scattering it to the four winds.

The price, in these days, is reasonable, and it may be bought in pads or in rolls. (Adhesive Dusters, St. John's Street, Kate's Hill, Dudley, Worcs).

MINISTRY OF HEALTH

SPEAKING at Richmond, Surrey, on Friday, July 3, Miss Pat Hornsby-Smith, Parliamentary Secretary to the Ministry of Health, made the following points:—

Dental Service.—When it comes to dental care I regret to say parents tend to show rather less responsibility than in other forms of care, and we still have a great deal of leeway to make up. Many a parent will readily take a child to a doctor's surgery for some trivial ailment but will neglect bad or irregular teeth until they start to ache, and by that time some of the teeth may be beyond repair. Far too few parents seek regular dental examination and treatment for themselves and their children. The bogey of the dentist's chair still looms large and broken appointments are only too common. The advantage of the local authority service is that defaulters can be followed up when they attend the welfare clinic, and, indeed, many of the appointments would never have been made at all if the patients were left to seek their own treatment. The Government's policy on charges for certain forms of dental treatment has resulted, as we hoped it would, in diverting a larger share of the resources of the dental service to conservative work for expectant and nursing mothers and young children. The School Dental Service now has the equivalent of 908 full-time dentists, but this does not include those engaged in maternity and child welfare whose number has steadily increased, so that the provision now made is in fact higher than it was in the peak year of 1948.

A NEW FILMSTRIP ON DENTAL CARE

As a supplement to the film "Thirty-two of Her Own", the Dental Board has recently issued a new filmstrip for use, with the film or separately, in schools and clinics.

The strip is in full colour and is excellently produced, and will undoubtedly be attractive to children. It is divided into three parts, "Eating the Right Foods", "Brushing our Teeth", and "Going to the Dentist". Teaching notes are provided which may be read verbatim.

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NATIONAL HEALTH SERVICE

The First Five Years

THE following statistics illustrate the first five years' work of the General Dental Services:—

Courses of treatment provided (including emergency treatment) 43,000,000
Dentures supplied 10,500,000

Dental Technicians

A new agreement has been negotiated by the Professional and Technical Whitley Council "B" for dental technicians in the hospital and other health services. Full details are given in P.T.B. Circular 27 of the approved remuneration and conditions of service, which shall be operative from March 1, 1953.

The salary scales are now as follows:—

(a) *Apprentice*: 1st year, £91; 2nd year, £106; 3rd year, £128; 4th year, £172; 5th and subsequent years, £209.

(b) *Dental Technicians*: £380 × £15 — £470.

(c) *Senior Technician*: £450 × £15 — £540.

(d) *Senior Technician in Charge*: £470 × £15 — £560.

(e) *Senior Technician (Surgical)*: £470 × £15 — £530 × £20 — £590.

(f) *Chief Technician*:

Total technical staff 6-13: £480 × £15 — £540 × £20 — £600.

Total technical staff 14 or more: £530 × £20 — £670.

3. *London Weighting*: In the Metropolitan Police Area all scales to be subject to London Weighting on the following basis: Age 16-20, £10; Age 21-25, £20; Age 26 and over, £30.

The filmstrip is issued on free loan with each copy of the film "Thirty-two of Her Own", obtainable from Sound-Services Ltd., 269, Kingston Road, Merton Park, S.W.19.

Copies of the filmstrip may be purchased, complete with teaching notes, at 15s.

Further details of this and other productions including booklets, posters, charts, and films on dental hygiene suitable for dental officers, teachers, parents, and children can be obtained from the Dental Board of the United Kingdom, 44, Hallam Street, London, W.1.

EXHIBITION OF IDEAS AND INVENTIONS

SEVERAL members contributed to a display of more than fifty "Ideas and Inventions" sponsored by a north-country dental company, and presented during the Annual General Meeting of the British Dental Association, held at Buxton from July 6 to 10, 1953.

The interest in this independent exhibition increased during the course of the week as news of the wide range of exhibits spread. It is hoped that next year's similar display in Blackpool, for which many visitors have promised exhibits, will be more widely advertised.

Among the exhibits the following attracted attention. It was noticeable that the most simple ideas received more interest than more elaborate presentations:—

Retractable plunger syringe (H. Ackers); Several orthodontic tools and devices, bite-grinding appliance, inlay vice, timing device (R. N. Bragg); Direct bite setter and grinder (J. Coady); Magnetic instrument rack, replaceable acrylic pontics (D. Derrick); Advance handpiece prototype (Marcel Garnier); Bite registrator (H. Hirst); Preheated gas apparatus (W. Hope); Improved mouth pack, flap retraction pins for oral surgery, simple

preparations of bacteriological specimens, daylight developing tank, three-in-one bite trays (S. L. Drummond-Jackson); Handpiece dismantling tool (R. Klein); Non-gagging tray (B. Kopkin); Maskless anaesthesia apparatus (K. Kurer); Jig for orthodontic springs (F. Filce-Leek); Lip and cheek retractors for oral photography, electronic flash attachment for photographic unit, auto thermostat control for X-ray solutions and tank arrangement (H. Mandiwall); Needle protector for cartridge syringe (G. Marrant); Band-forming pliers (R. E. Rix); Home-made handpiece airset, modification of cartridge syringe for root-canal filling, sorting rack for projection slides, sterilizable root-canal kit (R. R. Stephens); Electric amalgamator (Petrie Tucker). Other items included nylon prophylaxis tape, nylon dentures, operating goggles, plastic bite-formers, amalgamator, injection casting apparatus, simple testing devices for acrylic teeth, bite registration and grinding appliances, etc.

It is hoped that the interest aroused by this display will encourage a less modest attitude of intending exhibitors for subsequent displays, if, as is hoped, these are to become an annual feature.

BOOK REVIEWS

PROBLEMS IN DENTAL LOCAL ANÆSTHESIA. By MENDEL NEVIN, D.D.S., Former Oral Surgeon, Greenpoint Hospital; etc. The original material revised and edited after his death by HILLARD R. NEVIN, D.D.S. 7 × 9½ in. Pp. 760 + xxiv, with 272 illustrations. 1952. Brooklyn, N.Y.: Dental Items of Interest Publishing Co. Inc. (London: Henry Kimpton.) 75s.

THE Author was from 1934 until his death three years ago the Editor of *Modern Dentistry*, a journal which deals exclusively with local anaesthesia in dentistry. This large and somewhat unwieldy book consists of a compilation of articles, reprints, and letters to the editor with replies, culled from the pages of this journal. It is in fact a huge collection of opinions and reports from all over the world

that have been expressed over the last twenty years. It makes an unusual book, and not the type to sit down and read straight off, but more one to dip into and read fragments—a book to browse over. Its main fault is simply that it is too long, and too overlapping in the opinions. The average student would be overwhelmed by the problems and would become lost in a sea of names and personal reminiscences. The main drug that is discussed is Monocaine, a little-used local anaesthetic in this country. The British reader will miss his favourite Xylocaine, a local anaesthetic solution which he feels has solved a lot of problems in this field.

Providing one has a sound understanding and knowledge of local anaesthesia, there is plenty of interest in the book. Every strange

event is cited and commented on, techniques are discussed from every angle, the doors are in fact thrown wide open. It becomes a free-for-all forum, and leaves one with the feeling that difficulty was experienced in deciding what to leave out, so everything was put in. Its value lies in its historical and clinical contribution to dentistry, and to the research worker in local anaesthesia. The student and average practitioner will probably prefer the author's original book on conduction anaesthesia.

The standard of production is high—as is the price. N. L. W.

COMPLETE DENTURE PROSTHESIS. By RUDOLPH O. SCHLOSSER, D.D.S., F.A.C.D., Professor Emeritus, Northwestern University School of Dentistry, Chicago; and DANIEL H. GEHL, D.D.S., Professor of Denture Prosthesis, Marquette University School of Dentistry, Milwaukee. $6\frac{1}{8} \times 9\frac{1}{4}$ in. Pp. 511 + xiv, with 292 illustrations. 1953. Philadelphia and London: W. B. Saunders Co. 42s. 6d.

"CHAPTER 13: The Denture Space, Its Relation to the Rest Position of the Mandible, When the Latter is Used as a Position of Reference in Registering the Vertical Dimension of the Former in Compliance with the Biological and Physiological as Well as the Esthetic Requirements".

Oh dear! But read on: "The denture space comprises that part of the oral cavity which is bordered by the lips anteriorly, the cheeks laterally, the tongue interiorly, the maxillary ridge and palatal vault above, the mandibular ridge below, the lingual tissue attachments at the borders of the floor of the mouth and palate, and by the continuation of the oral cavity posteriorly". Pause for mental regrouping!

These be it known are two extracts taken at random from the latest edition of Schlosser, although in fairness to the author the second is, we are told, relayed from Hanau.

The student, by careful but time-consuming investigation, will be pleasantly surprised and no doubt relieved to find that the contents of Chapter 13, in spite of its ponderous prologue, in fact and ultimately deals with his old friend the technique of taking the bite. Encouraged

by this refreshing discovery he may be tempted to fit those full dentures together in the position of maximum occlusal contact, and let the dark obscurity of that second quotation rolls away and the denture space stands revealed in all its anatomical simplicity, clearly delineated by the periphery and fitting surfaces, in spite of Hanau!

Both examples serve admirably to illustrate a style of writing all too commonly prevalent in text-books, particularly transatlantic text-books. Yet this question of phraseology is a serious one, for clarity and directness of style, always desirable, are more than ever so in a world in which the modern student has no time to spare for translations, and in which his course is becoming more complex as his outside distractions mount. And this raises another point. This is an American text-book for undergraduate students (presumably American), as the author informs us in the preface. This may well be so, but the British undergraduate, whose clinical experience is limited by greater demands upon his time in other directions, would derive little benefit from any but the simplest techniques described by the author. On the other hand, as a book of reference or as a guide to a variety of techniques, it will be accorded a high place of honour by the experienced practitioner or the hospital clinician *because he already possesses a basic training and fully understands the language of prosthetics.*

The appearance of a co-author adds a note of expectancy at the outset but he disappoints, for he appears to have left little imprint of his personality upon this edition. He might have tidied it up a little, for it is a room, not so much over-furnished as full of odd pieces in the wrong places. Admittedly furnishings are a matter of individual taste; Chapter 2, for instance, is a large piece of redundant furniture dealing with plain anatomy and physiology, but, on the other hand, Chapter 10 is an attractive and useful piece dealing with the structural formation of the tissues forming and impinging upon the dentine foundations, and could well have functioned for and indeed in the place of Chapter 2. Chapter 3 on the masticatory mechanism is a most valuable

piece, but again is wrongly placed. Chapter 5 on the physics of retention is too small for so important a subject, and Chapter 7 on tooth selection is far too large by comparison.

This edition contains a high percentage of most useful material, and if it is not neatly and tidily to hand that is not to say that it is not worth the seeking.

A. G. A.

CLINICAL PERIODONTOLOGY. By IRVING GLICKMAN, B.S., D.M.D., F.A.C.D., Professor of Oral Pathology and Periodontology and Director of the Division of Graduate and Postgraduate Studies, Tufts Dental School; etc. $6\frac{1}{2} \times 10$ in. Pp. 1019 + xxi, with 742 illustrations. 1953. Philadelphia and London: W. B. Saunders Co. 75s.

This is a very fine book.

The author in his preface states his belief that periodontal care of the public is primarily the concern of the practitioner of general dentistry. This book is, therefore, written for the general dental practitioner and students preparing to be general practitioners.

A break from the normal method of considering periodontology is indicated by the use of the term 'clinical' in the title, and so throughout the subject is approached initially from the clinical angle. The author does, however, take great pains to stress the need for basing all clinical management on an appreciation of the underlying tissue changes. He states that "all clinical periodontal problems are basically gross expressions of microscopic changes".

Such is the philosophy of this very readable book, which is divided into three sections dealing with the tissues of the periodontium, periodontal disease, and the clinical management of periodontal disease. Each chapter is freely referenced with works written in all parts of the world, and all reasonable theories which have been advanced in explanation of some of the problems not yet solved are presented. It is interesting to find that the author has not swamped the book with his own previously published works, but has included them in the correct place and in suitable perspective.

Those who thirst for greater knowledge of treatment will not be disappointed, for almost

half the book is devoted to this, and there are few suggested forms of therapy which are not described.

Perhaps the only disappointing feature in this otherwise excellent book is that after calling the tissues which surround and support the tooth "the periodontium", and defining it as "the investing and supporting tissues of the tooth, namely, the periodontal membrane, the gingiva, cementum and alveolar bone", the entire consideration is of the marginal and lateral parts of this organ. Is not the time appropriate to consider periapical lesions under the subject of periodontology?

The quality of both the printing and the many illustrations, some of which are in colour, is as excellent as the text. The publishers are also to be commended on the extremely reasonable price at which this book is presented.

The reviewer has no hesitation in recommending this work without reserve to every member of the dental profession as well as to undergraduate students, whilst medical practitioners and specialists would also profit greatly from perusal of its contents. W. B. W.

AMERICAN POCKET MEDICAL DICTIONARY. A Dictionary of the Principal Terms used in Medicine, Nursing, Pharmacy, Dentistry, Veterinary Science, and Allied Biological Subjects. Nineteenth edition, $4\frac{1}{2} \times 6\frac{5}{8}$ in. Pp. 639 + iv. 1953. London and Philadelphia: W. B. Saunders Co. 19s.

On the whole it must be freely admitted that the average professional man has a limited vocabulary where subjects appertaining to his own are concerned. This lack is bound to narrow the outlook and decrease the reading of scientific articles. For an understanding of modern knowledge in the scientific medical world, even for the most erudite person, a dictionary is essential. The new edition of the *American Pocket Medical Dictionary* serves this purpose ideally. It is small, compact very well printed, and easy to follow. Despite the prefix "American", it is as useful in this country as it will be in the States, for the British reader will find his own terms included.

In addition to the definition of words, etc., usually found in a dictionary, there are many

useful tables. For example, the table on muscles gives all the information required: origin, insertion, nerve-supply, and action. Veins, arteries, etc., are dealt with in a similar fashion. It is a mine of information which will appeal to the student and practitioner alike, as well as the research worker and teacher.

Electromotive Forces and Electric Currents Caused by Metallic Dental Fillings

A survey of the literature since 1878 on the sources of possible electromotive forces for pairs of metallic fillings, and for single fillings, revealed that neither these forces nor their resulting currents had yet been measured, and

ABSTRACTS from Other Journals

that no measurements were reported from which these forces and currents could have been calculated. Therefore, schemes for carrying out electrical measurements and theories for the calculations were devised. A condenser-ballistic-galvanometer, potential-difference meter—and later, a vacuum-tube electrometer—were developed and used in the measurements. Results were secured on 213 pairs of fillings in the normal mouths of 137 subjects, and on 78 single fillings in the normal mouths of 66 subjects.

The following facts were ascertained:—

1. The bone fluid is just as important as the saliva in causing electric currents.

2. There are satisfactory methods for determining the net electromotive forces and resistances which are associated with metallic dental fillings.

3. These resistances are concentrated at the metal-saliva and metal-bone-fluid contacts.

4. A method has been established for determining the net electric current through a metallic filling under ordinary oral conditions.

5. The magnitude of the current through any filling is virtually independent of the number and kinds of other fillings in that oral

The printing and binding are of a high standard, with an easy alphabetical index on the fly leaves. Considering the high cost of books in these days, the price of 19s. is within reach of anyone, and will make more than a useful addition to the bookshelf.

N. L. W.

cavity, provided that the filling does not make contact with any other metallic filling.

The conclusions are:—

1. Good evidence exists that serious pathologic conditions in the oral cavity have been caused by metallic dental fillings.

2. Hypersensitivity of a subject to the metallic ions which are supplied by the fillings may be an important factor.

3. Relatively large electric currents pass through metallic fillings if 2 such fillings are in contact. Such contacts should be prevented.—SCHRIEVER, WILLIAM, and DIAMOND, LOUIS E. (1952), *J. dent. Res.*, 31, 205.

Nomenclature of Diseases of the Supporting Tissues of the Teeth

The origin of nomenclature is here described. The necessity for a terminology based on an understanding of pathology is stressed and the anatomical limits of the periodontium are defined. Reasons for using the prefix *peri* are given. A basic classification of gingivitis, periodontitis, gingivosis, and periodontosis with the use of marginal gingivitis to signify early stages of a periodontitis is proposed. Atrophic and resorptive changes are discussed, and it is emphasized that *epulis* is a word which should be confined strictly to the initial clinical diagnosis.—WADE, A. B. (1952), *Paradentologie*, 6, 156.

The Chemist Looks at Fluoridation

Fluorine is a more common constituent of public water supplies than was formerly believed. Of 6299 supplies examined by Hill and co-workers, 1416—or 22.3 per cent—contained an amount in excess of 0.6 parts per million of fluoride, and 378—or 6 per cent—contained an amount in excess of 1.5 parts per million of fluoride. It is therefore necessary to reduce

the amount of fluoride present in some water supplies, and to supplement it in others.

Four chemicals are at present available for fluoridating public water supplies. Of 105 installations operating in America in August, 1951, 67 were employing sodium fluoride; 33, sodium silicofluoride; 4, hydrofluosilicic acid; and 1, hydrofluoric acid. A saturated solution of sodium fluoride contains approximately 4 per cent by weight of the material, which makes it suitable for feeding in solution in small volumetric feeders. Furthermore, its solubility is fairly constant over a wide temperature range, so that the material—particularly in granular form—is suitable for use in saturators. Both of these facts make it particularly suitable for small installations in spite of its relatively higher cost. Sodium silicofluoride is the chemical most favoured for large installations, because of its substantially lower cost. Its low solubility makes it necessary to feed it in a suitable type of dry feeder. Gravimetric dry feeders are preferable to volumetric feeders because of greater accuracy. Because of ease of handling and absence of dust hazard, hydrofluosilicic acid in 30-per-cent aqueous solution will be a highly satisfactory material for use in small installations if, and when, it becomes available in quantity. McClure, studying the effects of fluorine added to the drinking water of rats in the form of sodium fluoride, as compared with sodium silicofluoride, found no difference in their effect on the teeth, on fluorine deposited in the bodies of the animals, or on their rate of growth. All available evidence indicates that, whereas a dosage of 1.0 to 1.5 parts per million is desirable for cold climates, as little as 0.7 may be sufficient where the mean annual temperature is above 70° F.

Fluorine is determined in water by making use of its bleaching effect on the zirconium lake of sodium alizarinsulfonate. The method is rapid and accurate, and may be done by any competent operator. Compounds, other than those listed, should not be used for water fluoridation until evidence is available as to their long-time effect on the human organism.—BLACK, A. O., (1952), *J. Amer. dent. Ass.*, 44, 137.

Orthodontic Diagnosis for the General Practitioner

Since the general practitioner is the first to observe an existing or an incipient malocclusion, he is entrusted with a great responsibility in advising the parent when treatment should be started. Early or preventive orthodontic treatment may simplify or even eliminate the necessity of treatment at a future time. Furthermore, the prognosis may not be so favourable at a later period.

In order to recognize any deviation from normal, a thorough knowledge of normal occlusion in the different stages of development is essential. Normal occlusion is usually referred to in the deciduous and permanent dentitions, the first and third stages of development. There are so many variations in tooth growth and development patterns in the intermediate or mixed dentition that a normal occlusion occasionally may resemble a malocclusion.

The following deformities are amenable to treatment in both the deciduous and the intermediate dentitions:—

1. Anterior or posterior crossbites.
2. Extreme deformities in Class II, Division 1, cases.
3. Mandibular prognathism or Class III cases.

In cases of intermediate dentition where a crowding of the mandibular incisors exists, Hays N. Nance has evolved a procedure whereby the operator may anticipate a potential malocclusion in the permanent dentition.

A diagnosis of malocclusion in the permanent dentition is not so difficult as in the preceding stages. Angle's classification is often used as an aid to the operator in making his decision. The degree of the deformity will influence the decision as to whether or not a case should be treated—the time, expense, and benefit to the patient of a corrected malocclusion being kept in mind.

A thorough examination—including a complete history, casts, and roentgenographic series—is valuable in determining a malocclusion. Thumb sucking, lip sucking, abnormal tongue habits, and perverted swallowing habits are especially noted.

The time to begin orthodontic therapy for the correction of a malocclusion varies with the individual patient. The stage of development, rather than the chronologic age, is the deciding factor. A concentrated effort, through the schools and the periodicals, should be made in order to fortify the general practitioner with a greater knowledge of orthodontics so that he is better equipped to make a diagnosis of malocclusion at the proper time.—GERSHATER, M. M. (1952), *J. Amer. dent. Ass.*, **44**, 194.

Surgical Diathermy: Its Theory and Practical Application in Dental Surgery

The theory of electrosurgery is well described and explained in its three different aspects of electrocoagulation, electrodesiccation, and electrosection. The advantages of electrosection over surgery with the scalpel are said to be: (1) Rapid effortless cutting of soft tissues. (2) Greater degree of accessibility to difficult areas. (3) Relatively bloodless field. (4) Destruction of bacteria.

Attention is, however, drawn to the fact that electrosection will not control hæmorrhage from incisions into very vascular tissue, whilst the production of a thin layer of coagulated tissues may form a nidus for subsequent growth of bacteria.

The disadvantages are: (1) Cost of the necessary apparatus. (2) The additional degree of practice necessary before mastery is acquired. (3) The danger of explosion should an inflammable anæsthetic be used. (4) The danger of damaging or cutting other tissues. (5) The likelihood of frightening an apprehensive patient due to the crackling noise and the amount of smoke.

The author does not consider that the average general practising dental surgeon is likely to use it sufficiently frequently to gain great skill in its use; he does, however, consider it suitable for such operations as biopsy of malignant tumours, removal of some peripheral soft-tissue tumours, gingivectomy, papillectomy, frænectomy, and the exposure of unerupted or partially erupted teeth not covered with bone.

Surgical diathermy will not be the method of choice for all such operations; the author

is not yet convinced of its value in endodontal work.—HARDWICK, J. L. (1953), *Brit. dent. J.*, **94**, 4.

Streptococci of the Mouth, and their Relationship to Subacute Bacterial Endocarditis

In a paper read before the Odontological Section of the Royal Society of Medicine, the author described an investigation into the nature of the Streptococci isolated from the mouths of twenty-five apparently normal individuals. Thirty-seven per cent were found to be members of Lancefield groups, principally Groups H and K. The cultural and biochemical characteristics of all strains were investigated and the similarity between some strains of *Streptococcus sanguinis* and Group H streptococci was stressed.

Four cases of subacute bacterial endocarditis were investigated. In one case a Group H strain was isolated from the blood and also from the mouth. They belonged, however, to different serological subgroups.

Concluding, the author emphasized that although it had not been established that the mouth is a focus of infection in the aetiology of subacute bacterial endocarditis, the presence in the mouths of normal patients of bacteria serologically similar to those isolated from the blood of many cases of subacute bacterial endocarditis, suggests that precautions should be taken to protect the patient with a susceptible heart lesion during dental operations.—FARMER; E. DESMOND (1953), *Proc. R. Soc. Med.*, **46**.

Practical Tips

To remove Alginate from Perforated Impression Trays.—Soak the perforated impression tray for thirty minutes in a solution of one tablespoon of bicarbonate of soda to a pint of water. The alginate dissolves in the solution and the tray can then be wiped dry.—*Oral Health*, Feb., 1953.

CORRECTION

Critics' Corner, June, 1953, p. 321. Par. 3, line 5: *for* say A amount *read* an amount; line 7: *for* say B amount *read* an amount; Par. 4, line 4: *before* I begin *insert* (A); line 18: *before* The next *insert* (B).

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Vol. III, No. 5

August, 1953

Editorial Committee: D. M. BEAUCHAMP; H. J. POTTER, F.I.B.S.T.

EDITORIAL

PLEASANT surroundings, good company, and a fine programme—these were ingredients of the rally at Preston in the Harris School of Art, attended by over eighty, including men from Windermere and Birmingham, Liverpool and Edinburgh, with strong support from London.

Emphatic affirmation has been given to the questions, "Is there any real value in association membership?" "Is it worth while in a strenuous age like ours to give precious time to business and technical meetings?" These practical questions have been given a straightforward answer by all who troubled to attend. The break in routine, the meeting with old and new friends, the admiration of the work of other members, and the exchange of ideas, have all conduced to a refreshed return to our own laboratories and perplexities.

Speaking generally, association implies identification and co-operation: a person associates himself with the party or society in which he believes and whose interests are identical with his own, with the object of meeting and co-operating with those of his own profession, for the improvement of that profession: but to achieve such improvement

the association needs the support of every person pursuing the same calling, for mutual interest demands mutual obligation, and results in mutual service.

It is urgently necessary for us to increase our membership, and one of the means to this end is the multiplying of opportunities for those already in our business to meet, first with each other, and then with those younger men who will later take our places—the employed technicians.

Many advantages of association membership may be enjoyed, the exchange of technical information and commercial experiences, and mutual help in the event of disputes, but the absent member soon begins to lose touch and interest, neglecting meetings when he is in doubt and trouble.

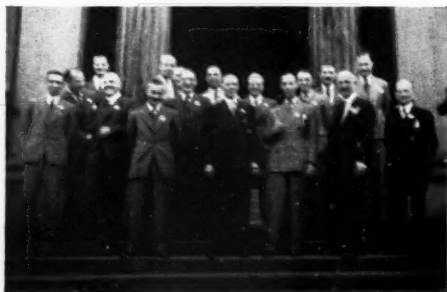
The encouraging Preston meetings have also prompted the suggestion that the summer conferences hitherto held in London should take place at various provincial centres each year in turn, with the object of assuring laboratory owners all over the United Kingdom that even in these times the association is still observant of its responsibility in representing their interests at home and abroad.

SUMMER CONFERENCE AT PRESTON

THE first provincial summer conference was held at Preston on Saturday, June 13, at the invitation of the Northern Branch, newly formed by the union of Liverpool and District, North Western, and North Eastern Branches.

The opening session commenced at 11.0 in the lecture hall of the Harris Art School, Avenham Place, with Mr. C. S. Staton in the chair, assisted by Mr. C. Bradshaw, the honorary secretary. Mr. Staton, in welcoming

those present, referred to the spirit displayed by the long-distance travellers as a stimulant for the difficult times being experienced by our profession over the whole of the country. These difficulties were the reason for the amalgamation of the three branches into one, so as to conserve our strength and centralize the efforts. The meeting was greatly honoured by the presence of the association's hard-working President, whom he then introduced.



A group taken at the Preston Summer Conference.

Mr. Emmett thanked Mr. Staton for his kindly welcoming words, and expressed the hopes that success would crown this first joint effort of the three now united branches, be a feather in the cap of the main body of S.I.M.A., and bring help and satisfaction to those who were the backbone of our association in the north. Such a union was not an isolated case, the energetic Croydon branch had recently found it necessary to join in with London for the same reason, and even the well-established and experienced men were anxious for the prosperity of our craft. He felt it important to seize this excellent opportunity for questioning, discussion, and the airing of views, as the main committee at meetings in London always had difficulty in knowing the minds of the distant members. Here present was a representative collection of keen supporters, among them Mr. A. Gardiner, Coventry; Mr. E. Whittaker, Windermere; Mr. W. G. Kenyon, Manchester; Mr. P. J. Carr, Edinburgh; Mr. J. Cole, treasurer of the late Croydon branch; Messrs. E. G. Bell, J. L. Jacobs, and J. R. Pears from London;

accompanied by six more stalwarts who would be asked to make spoken contributions to the meeting.

In introducing Mr. Gerald E. Cross, Birmingham, Mr. Emmett gave instance of heroism which had recently come to light. In the habit of regularly attending the main committee meetings, owing to an operation on his eyes it became necessary for Mr. Cross to be accompanied by his wife, who having piloted him to 6, Holborn Viaduct, waited for him in London until the time came for their return. This was routine until the advent of Mr. Gardiner, who, having been elected to the committee, became his travelling companion. This kind of devotion should be advertised to the members.

Mr. Cross responded by saying that he always felt it was an important duty to do everything possible to further the work of the association, publicly acknowledged his debt to his wife, and thanked the members for the honour they conferred by electing him to the vice-presidency as a successor to Mr. A. J. Grant.

H. J. Nowers, secretary of the late Croydon branch for eight years, and who now serves on the S.I.M.A. council of management, told of the great advantage to be had in contact with business men of the other sections of the association—Orthopaedic and Surgical Appliances, Steel, Silver, Ward and Theatre Equipment, and Hypodermic Equipment; hearing their problems helped us with ours. He warned the Northern branch to try and get everybody working, to get into the habit of attending the meetings, be loyal, for where the interest is the effort can always be made, and stressed the importance of the inter-transmission of branch views and main committee decisions.

Frank E. Martin, chairman of the London Regional branch, wished success and satisfaction to Mr. Staton, who was to be admired for his undertaking responsibility for such a widespread membership. London had shown in the past that activities of many kinds were necessary to hold the interest and keep the members together. The querulous question "what is S.I.M.A. doing?" was always being

asked by men who never took any trouble to find out. At recent meetings in London, an after discussion had been tried and found very helpful, notes of the discussion being preserved for reference at the following meeting. He brought the good wishes of all the London members and thanked the local men for their northern hospitality.

H. J. Potter, main committee man, and co-editor of this supplement, then congratulated Mr. Staton and Mr. Bradshaw on their spirit in salvaging the branch from the wrecks of the former branches, and reminded his hearers that the troubles were just as bad in the south as in the north. Bearing in mind the distances separating members, he pointed out the need for a vehicle for the dissemination of association news, and how valuable to us was the



Immediate foreground: J. L. Jacobs's display; beyond is the work of the Newton Heath Technical School.

DENTAL PRACTITIONER SUPPLEMENT for this purpose. Illustrating this, he related that at the Trocadero dinner last October he was asked by a well-known dental surgeon to elucidate a point in a supplement editorial—"you see, they read it; we have thereby a wide circle of contacts among the dentists, let them know we want to serve them in an ethical way; it is the only way we have to put our message over to our potential customers".

Following a report of the Paris proceedings by D. M. Beauchamp, Mr. C. M. Booth, main committee man and valued organizer of our successful winter conference week-ends, who had left London at midnight to arrive on time, after speaking of future plans, declared "we have all come to help you on your way,



J. R. Pears with an interested audience.

but success is only achieved by continual plodding", and urged all to remember that the association exists for their help and advice, and they must use it to the utmost.

Observations, apologies for absence, questions, and guests' thanks expressed by Mr. Emmett filled the remainder of the time, and at 12.30 we made our way to the Conservative Club for luncheon, at which the guests of honour were J. Byrom, Esq., L.D.S. R.C.S., and his technician, Mr. Hewitt.

Commencing at 2.0 o'clock, Mr. Byrom gave a most helpful and informative lecture on "Orthodontics", illustrated by large black drawings on white paper sheets, and freehand blackboard sketches, and assisted our comprehension of all he had to tell us by passing around carded specimens of wire work in stages, and finished appliances.

At 3.30 the whole company adjourned to another hall to view a large number of exhibits of all kinds supplied by the pupils of Newton Heath Technical School under the direction of Mr. C. Roundhill; Mr. J. L. Jacobs, wax preparation for and finished chrome castings; Messrs. Pears and Bell, orthodontic appliances; the

British exhibit which was taken to Paris; Mr. Kenyon, self-made vibrator, and specimen punches and dies for pressed steel work; Mr. Atherton, miniature scale ship models. The whole show elicited questioning and information of a most interesting and useful kind.

At 5.0 Mr. Emmett voiced the appreciation of all the guests for the work of the branch organizers for the three meetings of the day, after which Mr. Staton thanked all who had helped in any way, and formally closed the day's proceedings.

A REVIEW OF DENTAL CASTING INVESTMENTS

By J. L. JACOBS

HAVING devoted considerable time and thought to the development of investment materials for producing dental castings in chrome-cobalt alloys, and, being satisfied with the high standard of dimensional accuracy attainable in the resultant castings, it was considered worth while investigating the possibilities of using and, if necessary, modifying these types of investments for use in producing large dental castings in gold and other precious metal alloys currently used in dental prostheses.

Let us first consider the requirements to be met by the ideal casting investment:—

1. Accuracy. This of course being the first and foremost.
2. Ability to produce dense smooth castings.
3. Reasonable temperature tolerance in use.
4. Consistency of characteristics.
5. Stability, both in use and in store.
6. Ease of manipulation.

As is well known, dental investments consist basically of approximately 30 per cent gypsum and 70 per cent silica, to which is added water just prior to using.

In this formulation silica serves as the refractory material and plaster-of-Paris as the binder to hold the particles of silica together in the form of a mould.

Proceeding through the various stages of producing a casting, let us consider plaster-bound investments and see how they measure up to our needs. I would point out at this stage, however, that a high degree of accuracy is attainable with plaster-bound investments under controlled laboratory conditions, but not with normal dental laboratory practice or conditions, as will be shown.

The plaster-of-Paris element in dental investments exhibits undesirable characteristics, which are usually uncontrollable and unpredictable, such as:—

1. Setting expansion; often unknown and varying, according to powder-water ratio.
2. Hygroscopic expansion. Extent usually unpredictable.
3. Shrinkage at elevated temperatures, thereby partially cancelling out the expansion of the basic refractory material. A most undesirable feature. This characteristic will vary according to powder-water ratio and often result in mould cracking.
4. Working surface of refractory model not smooth, owing to the action of certain duplicating materials, or the necessary drying-out process prior to waxing up the pattern. Certain dimensional loss also takes place at this stage.
5. Gives off free sulphur if overheated, resulting in contamination of metal. In the author's opinion this is the most common cause of porous castings, and for this reason, quite apart from other considerations, a well-designed furnace incorporating a pyrometer is essential for producing successful castings.
6. Invested cases must be proceeded with forthwith as mould rapidly deteriorates after say twelve hours. An invested case must not in any case be allowed to stand for days, as this renders mould useless.
7. Presence of fins on castings. This clearly indicates dissimilar characteristics of the mix used for model and that for filling cylinder, this being due to any of the aforementioned variable characteristics.

8. Being hygroscopic, deterioration in store can be rapid.

Summarizing, it appears we have in a plaster-bound investment a complex set of variable characteristics, often resulting in badly fitting and porous castings.

SILICA INVESTMENTS

Having decided to use silica with certain modifying elements as the basic component of our investment, silica in solution was chosen as a binder, as this would enable us to produce a mould consisting only of silica. We have thus a stable inert product, possessing a definite thermal characteristic, over which we have complete control.

Dealing now with the practical use of silica investment, let us proceed through the various stages of casting: having produced a refractory model, no setting expansion or hygroscopic expansion has taken place, the result is an exact reproduction of the original.

On drying out the refractory model, preparatory to wax-up, no dimensional change has taken place and the working surface is unaffected. Prior to investing waxed-up pattern in cylinder, no soaking being necessary, the risk of pattern lifting is eliminated.

The cylinder now contains a solid mass of investment which has precisely the same characteristics throughout: up to this stage no dimensional change has taken place and it now remains to pre-heat the cylinder prior to casting.

The co-efficient of expansion of silica is approximately 1.5 per cent at 1000° C. It is possible to exploit this property to advantage by heating the cylinder to that temperature indicated on the expansion gradient to match the known contraction of the metal being used. In the case of dental golds it is established that a pre-heat temperature of about 800° C. is required.

Summarizing: in silica investments it seems we have an ideal investment material, for the following reasons:—

1. Ability consistently to produce dental castings to a standard of accuracy hitherto considered unattainable.

2. Elimination of risk of metal contamination.

3. Elimination of all undesirable and uncontrollable dimensional changes of casting mould, leaving only thermal expansion which is under direct control of the user.

4. Being non-hygroscopic, it has a long shelf life.

5. Solid-liquid ratio when mixing is not critical—resulting in ease of manipulation.

6. Tolerance to overheating—mould not harmed by temperatures in excess of 1100° C.

7. Mould possesses high degree of permeability—moulds may stand indefinitely without harm.

Conclusion.—With these new materials and modern techniques available, precision partial and full denture castings are now within the scope of dental technicians.

NEWS FROM HEAD OFFICE

Wages during Sickness.—The following revised formula governing the payment of wages during sickness has now been agreed by the National Joint Council and came into operation on June 1, 1953:

“After six months’ continuous service with the same employer, technicians shall be entitled to sick leave on the following basis, viz., two weeks on full pay and six weeks on half pay (eight weeks in all) in any one year.

“In the event of prolonged illness entailing more than eight weeks’ sick leave, the

technician shall be entitled to further sick leave on half pay, the period for which such additional sick leave is payable being calculated as follows:—

“From the total sick leave to which the employee has been entitled during the preceding two years ended immediately before the start of sickness (or since the commencement of employment, whichever is the less) shall be deducted the total of all periods of sick leaves taken during those years. The unexpended balance so calculated shall be the further

period for which wages at half rate shall be paid. The maximum entitlement to paid sick leave in any period of twelve months shall be twenty-four weeks, that is two weeks on full pay and twenty-two on half pay.

"During the period of full pay the employer shall be entitled to deduct an amount equal to the sickness benefit or the Industrial Injuries benefit payable to the technician, excluding any part of such benefit which is payable in respect of a child or dependant. During the period of half pay the employer shall be entitled to make deductions at half the rate applicable to full pay.

"When the sickness lasts for more than three days any entitlement to wages during sickness shall be subject to the production of medical certificates. The employer shall have the right to have the employee medically examined at the employer's expense."

Once again we would stress the advisability of employers taking out an insurance policy to cover this risk. Further particulars can be obtained from S.I.M.A.

Holidays with Pay.—At its last meeting the Main Committee considered a revised proposal put forward by the Employers' Side of the N.J.C. for the amendment of the conditions relating to holidays with pay, on the basis of one working day's holiday for each month of service completed with the same employer prior to May 1, in each year, after a qualifying period of six months in his employment. After further discussion it was decided to accept the formula submitted at the last meeting of the N.J.C.

Grading of Dental Technicians.—This matter is in abeyance as the conditions of service of dental technicians are to be issued separately from the N.J.C. Yellow Book containing the constitution, aims, and functions of the Council which are unlikely to be varied for some considerable time. The question of grading will arise when the separate booklet dealing with the conditions of service is under consideration.

Completion of Indentures.—The N.J.C. has informed the Central Youth Employment Executive in reply to an inquiry from that body, that if an apprentice is unable to attend

technical classes because he has not reached the educational standard required for admission by the Authorities of the College concerned, provided his training is in other respects adequate, this will not be deemed to prevent the indenture from being satisfactorily completed.

Summer Conference.—As a result of the very successful conferences which have recently been held in Preston, Birmingham, and Cardiff (reported elsewhere in the Supplement), it has been decided to hold a summer conference each year in each of the provincial branch areas in turn while the Annual Week-end Conference will continue to take place in London in February on the same lines as heretofore.

Trophy Award.—It has been suggested that a national trophy award should be made by S.I.M.A. to the best student of the year in the City and Guilds final examination for dental technicians and the proposal has been referred to the Branches for their observations and suggestions.

Birthday Honours.—Our congratulations have been conveyed to Miss E. Russell-Smith, who is responsible for the administrative side of the Dentists Bill at the Ministry of Health, on her award of the D.B.E. in the Birthday Honours.

Norway.—Mr. F. E. Martin, Chairman of the London Regional Branch, anticipates visiting Norway in the near future and hopes to contact our counterpart in that country. He has been asked to convey our fraternal greetings and good wishes to the Norwegian Dental Laboratory Owners and to assure them of willingness of S.I.M.A. to co-operate with them whenever possible.

New Members.—Mr. T. C. Prescott, 20, Duke Street, Henley-on-Thames, has been recommended for election as a full member of S.I.M.A. and the following affiliated members have been transferred to full membership:—
H. & M. Dental Laboratories, 116-7, Holborn, London, E.C.1.
Haynes & Wood, 22, Wimpole Street, London, W.1.
Hollings & Williams, 49, Station Road, Gerrards Cross, Bucks.

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